

# DESIGN DEVELOPMENT DOCUMENTS

100% Draft Design Development Documents shall consist of the following (Additional types of documents and information may be required for certain projects.):

## Design Development Drawings

- Standard cover sheet
- Index sheet (may be included on cover sheet)
- General sheets
  - Overall site plan showing total project
    - Existing conditions (as base)
    - Contractor staging areas (construction storage, field office, construction camp) with adequate space or sequencing needs
    - Construction limits
    - Construction access
    - Survey control information, monuments and benchmarks with coordinates and elevations
    - Property lines with bearings, easements, utility corridors and setbacks
    - Proposed construction (i.e. outline of new structures, utilities, roadways, walks)
    - Unique construction requirements
  - Existing Conditions Plan:
    - Existing Contours and spot elevations
    - Existing Buildings and other structures
    - Existing Site Features: roads, parking, structures, walks, steps, walls, etc.
    - Existing Utilities, above and below ground, shown to scale (transformers, inlets, lift stations, propane tanks, septic tanks, culverts, etc.) include spot elevations for each, invert elevations for all below ground structures. Use appropriate symbols for small utility items (i.e. lighting, transformers, pull boxes, manholes, inlets, etc.)
    - Existing land features and vegetation
  - Overall symbol legend and abbreviations list
    - Demolition plan, as appropriate. Demolition may be shown on discipline sheets if more appropriate.

- Civil Engineering Sheets
  - Site Plans
    - Existing conditions
    - Discipline specific notes, legends, code references, symbols and abbreviations.
    - Site features: roads, parking, structures, walks, steps, walls, etc.
    - Utilities shown to scale (lighting, transformers, pull boxes, manholes, inlets, lift stations, propane tanks, septic tanks, culverts, etc.) Use appropriate symbols for small utility items (i.e. lighting, transformers, pull boxes, manholes, inlets, etc.
    - Geotechnical testing areas, boring locations, percolation test holes
    - Construction limits
  - Road and Parking
    - Existing conditions (as base) with plan and profile sheet outlines, as appropriate.
    - Plan and profile sheets
    - Typical cross-sections
    - Road and parking centerline stations, bearings, distances, and curve data (layout tables, as appropriate)
    - Intersections and other site radii identified with radius and coordinates
    - Construction limits
  - Storm Water
    - Existing conditions (as base)
    - Collection, treatment (i.e. settlement ponds), and layouts (plan and profile sheets, as appropriate)
    - Structures plans, elevations and details
    - Construction limits
  - Utilities
    - Existing conditions (as base)
    - Water systems and components: collection, treatment, and distribution layouts (plan and profile sheets, as appropriate)
    - Wastewater disposal systems and components: location, size, and layouts (plan and profile sheets, as appropriate)
    - System processes and flow diagrams

- Utilities (identified for removal or abandonment, as appropriate)
- Construction limits
- Details Sheets
  - Details (i.e. trenching details, thrust blocks, water/sewer line crossings, silt fence, sewer cleanouts, manholes, valves and boxes, curb stops, fire hydrants, air release valves, sewage air release valves, irrigation details, pressure relief valves, meters and boxes, pressure regulators, check valves and boxes, backflow preventors, septic tanks, absorption trenches, distribution boxes, piping connections, water well details, lift station details, storm water details, storage tank details)
- Landscape Architecture Sheets
  - Demolition Plan (if required)
    - Existing conditions (as base)
    - Structures
    - Plant material (tree protection, plants to be removed or salvaged)
    - Utilities (identified for removal or abandonment)
    - Site furnishings
    - Clearing and grubbing
    - Construction Limits
  - Site Plan
    - Existing conditions (as base)
    - Major site features: roads, parking, structures, site drainage, walks, steps, walls, etc.
    - Utilities shown to scale. Use appropriate symbols for small utility items (i.e. lighting, transformers, pull boxes, manholes, inlets, etc.)
    - Discipline specific notes, legends, symbols and abbreviations.
    - Sections and elevations identified
    - Major site elements and details identified
    - Storm water protection measures
    - Construction Limits
  - Site Layout Plan
    - Existing conditions (as base)
    - Roads, parking, walks and service areas locating:

- Dimensioned traffic markings
  - Dimensioned walks, steps, terraces, and site elements
- Buildings and structures
  - Finish floor elevations noted
  - Roof overhangs
- Outdoor lighting
- Above and below ground utilities
- Construction Limits
- Grading Plan
  - Existing conditions (as base)
  - Existing contours and spot elevations
  - Proposed grading
    - Proposed contours (maximum 2' contour interval with each 10' interval in heavier pen weight and labeled)
    - Spot elevations of key walks, ADA accessible routes, walls, parking, drainages and site elements
    - Spot elevations at top and bottom of walls, steps and ramps
    - High points, low points, swale centerlines
    - Finish floor elevations at each access point of structures
  - Tree and vegetation protection
  - Utility systems
  - Construction Limits
- Planting/Revegetation/Irrigation Plan
- Site Elevations:
  - Entrances
  - Exterior materials with major site elements
  - Dimensions
- Site Sections (One longitudinal and one transverse)
  - Typical section through site
  - Stairs
  - Site Walls

- Architecture Sheets
  - Compliance Drawings (similar to Historic Structure Report Drawings), annotated floor plans, elevations, roof plans, and building sections that illustrate the anticipated impact or effects of recommended treatments to historic structures (typically for SHPO review).
  - General Sheet(s)
    - Notes, legends, code references, fire safety plan, symbols and abbreviations legends.
  - Demolition Drawings (typically historic structures)
    - Floor Plans
      - Spaces individually delineated and labeled
      - Section cut references
      - General notes and annotations on the same sheet
      - Dimensions
      - Clearly Identify demo items
    - Roof Plans
      - Section cut references
      - Plan dimensions
      - General notes and annotations
      - Clearly Identify demo items
      - Identify roof assembly, substrate, and drainage items
    - Elevations
      - Entrances, window arrangements, doors
      - Exterior materials with major vertical and horizontal joints
      - Vertical dimensions/floor levels
      - General notes and annotations on the same sheet
      - Clearly Identify demo items
    - Building Sections
      - Floor levels
      - Vertical dimensions/floor levels
      - Spaces labeled
      - General notes and annotations on the same sheet
      - Clearly identify demo items

- New or Adaptive Use Drawings
  - Building Floor Plans
    - Spaces individually delineated and labeled
    - Section cut references
    - Enlarged layouts of special spaces
    - Door swings and marks
    - Window openings and marks
    - General notes and annotations on the same sheet
    - Plan dimensions (verified with structural)
    - Clearly Identify new work
  - Building Roof Plans
    - General notes and annotations on the same sheet
    - Section cut references
    - Plan dimensions
    - Indicate roof pitch/taper and drainage arrows
    - Gutters and downspouts
    - Primary and secondary roof drains and scuppers
    - Label roof assembly and deck materials
    - Clearly Identify new work
  - Building Elevations
    - Entrances, window arrangements, doors
    - Exterior materials with major vertical and horizontal joints
    - Roof levels and overhangs
    - Vertical dimensions and finish floor elevations
    - General notes and annotations on the same sheet
    - Clearly Identify new work
  - Building Sections (Minimum one longitudinal and one transverse)
    - Vertical floor to floor dimensions/elevations (verified with structural)
    - Stairs and elevator shafts
    - Typical ceiling heights
    - Room labels
    - General notes and annotations on the same sheet
    - Clearly Identify new work
- General roof construction details (roughed out)
- Door and Window details (roughed out)

- Typical and special construction details (roughed out)
  - Interior elevations
  - Reflected ceiling plans
  - Room finish, hardware, door and window schedules (roughed out)
  - Equipment layout (roughed out)
  - Keynotes shall contain complete note, not specification number
  - Keynote Legend shall be on the same sheet as keynote reference
  - All accessibility dimensions shall be located directly on accessibility layout sheets, not referenced remotely to a standards sheet.
- Structural Sheets
    - General
      - Applicable Codes and Standards
      - Listing of design loads in accordance with IBC 2003, Section 1603
      - Listing of all structural materials used, including material strengths
      - Diaphragm fastening requirements
      - Requirements for special inspection IBC 2003, Chapter 17
      - List of abbreviations
      - Symbol legend
    - Standard Details
      - Standard details applicable to the project
      - Control joint details
      - Reinforcing steel splice length schedule
      - Lintel schedule(s)
    - Foundation Plan
      - Fully dimensioned foundation plan (references to the architectural drawings for foundation dimensions are unacceptable) including:
        - Overall building dimensions
        - Column gridlines
        - Location of foundation elements with respect to column gridlines
        - Size of all foundation elements
        - Foundation wall thickness

- Floor Framing Plan
  - Fully dimensioned floor framing plan (references to the architectural drawings for framing dimensions are unacceptable) including:
    - Overall building dimensions
    - Column gridlines
    - Location of framing elements with respect to column gridlines
    - Size and spacing of framing members
    - Size and direction of span of roof sheathing or decking
- Roof Framing Plan
  - Fully dimensioned roof framing plan (references to the architectural drawings for framing dimensions are unacceptable) including:
    - Overall building dimensions
    - Column gridlines
    - Location of framing elements with respect to column gridlines
    - Size and spacing of framing members
    - Size and direction of span of floor sheathing or decking
- Details
  - Foundation Details
  - Floor Framing Details
    - Loading diagrams for special load cases for steel bar joists
    - Column schedules for steel buildings
    - Column and beam schedules for concrete buildings
  - Roof Framing Details
    - Loading diagrams for special load cases for steel bar joists
    - Column schedules for steel buildings
    - Column and beam schedules for concrete buildings
    - Prefab wood truss profiles with loading diagrams for all load cases



- Mechanical
  - Discipline specific notes, legends, code references, symbols and abbreviations.
  - Preliminary equipment sizes, locations, and capacities
  - Preliminary equipment layout plans for mechanical rooms
  - Floor plans for: HVAC, plumbing, and fire protection systems
  - Preliminary HVAC system schematics and flow diagrams
  - Acoustical and vibration control measures
  - Energy conservation measures
- Electrical
  - Discipline specific notes, legends, code references, symbols and abbreviations.
  - Power, telephone, and telecommunication distribution to project: plan and details
  - Site electrical plan showing routing with transformers, generators and vaults drawn to scale
  - Approximate sizes, locations and capacities of major components
  - Preliminary equipment layouts plan for electrical rooms
  - Roof plan for lightning protection
  - Floor plans for: lighting, power, telephone, security, fire detection systems
  - Light fixture schedule
  - Single line diagrams for: power distribution, fire alarm and security systems

### **Division 1 Specifications**

- Use the [Division 1 Specification Templates](#). Templates shall be edited to meet requirements of this project.

### **Division 2 through 16 Outline Specifications**

- Use the [Guide for Writing Outline Specifications](#)

### **Initiate Constructability Analysis**

- Initiate [Constructability Analysis](#)

### **Product File**

- Assemble product file of preferred/selected material samples and literature from all disciplines.

### **Updated Class B Construction Cost Estimate**

- Class B Construction Cost Estimates shall be prepared in a format matching the [Class B Construction Cost Estimate](#) sample.

### **Draft Design Development Documents Submittal Formats**

- Submit Draft Design Development Documents in [Hard Copy Formats](#). Draft Design Development Drawings shall also be submitted in [Electronic Format](#).
  - Completed Design Development Drawings
  - Division 1 Specifications
  - Divisions 2 through 16 Outline Specifications
  - Product File
  - Updated Class B Construction Cost Estimate

### **Responses to Draft Design Development Documents Submittal Review Comments**

- NPS Review Form with Responses